CASE REPORTS

Gangrene of the Thigh Owing to Venous Occlusion

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GANGRENE caused by venous occlusion is rare. There have been no reports in the medical literature of gangrene occurring in the thigh alone; gangrene of this kind is preceded by "blue leg," or phlegmasia caerulia dolens. In about one-half of all reported cases of venous occlusion gangrene, amputation was required; and the mortality rate for all reported cases was about 25 per cent. The purpose of this report is to call attention to this unusual condition in which prompt treatment may avert tragic consequences.

REPORT OF A CASE

A 38-year-old Caucasian woman in her first pregnancy had cesarean section because of fetal-pelvic disproportion. The postoperative course was uneventful except for wound infection. Ambulation was started on the first postoperative day. Fourteen days after operation, the patient noted bluish discoloration and pain in the left thigh. As the day progressed the entire leg became quite blue. Edema of the thigh appeared first, followed in 24 hours by involvement of the entire leg. The involved extremity was slightly warmer than the other leg and peripheral vessels were normal. During the next four days the left foot and leg became more edematous and the bluish discoloration decreased. During this four-day period the extremity was elevated and Dicumarol (dicoumarin) was given in doses of 300 mg., 200 mg. and 150 mg. on successive days.

At 2 o'clock in the morning of March 29, the fifth day after discoloration had appeared, the patient was awakened by pain in the side of the left thigh. At the site of pain there was an oval area of discoloration which enlarged to diameters of 24 x 10 cm. This was ascribed at the time to a bleeding tendency, and on March 30, 1957, Dicumarol was discontinued and 50 mg.. of Mephyton® (vitamin K_1) was given intravenously. The clotting mechanism, as determined by platelet content and by bleeding and clotting time, was normal. Chymotrypsin was given intramuscularly, 0.5 cc. every eight hours for 11 days. Approximately five days after the onset of discoloration a black bulla appeared over the surface. Resolution of the bulla left an area of hard gangrene about 16 x 8 cm. (Figure 1). The patient's temperature rose to 100.6°F. The day before gangrene appeared, the prothrombin time was only 69 per cent of normal.

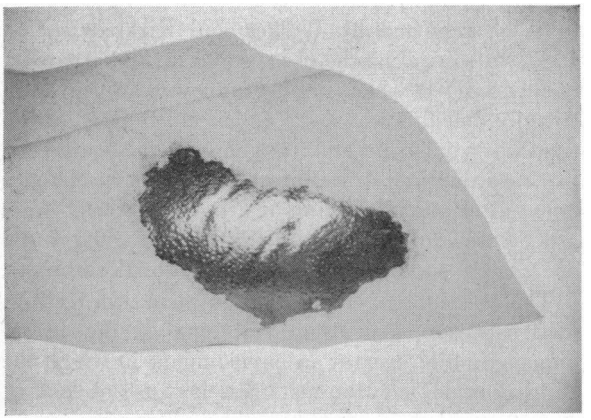

Figure 1.—Gangrene of the thigh owing to venous thrombi.

On April 9 the area of dry gangrene was excised. The subcutaneous tissue was much more extensively involved than the skin, the fat obviously necrotic and infiltrated with blood. The tissue was removed down to the tensor fascia lata, where the pathologic process ended. Upon examination of the tissues, complete thrombosis of all venous channels was noted. The arteries were intact without evidence of thrombosis. A portion of the operative site was closed primarily and the remainder with a split thickness graft. Four hundred thousand units of procaine penicillin was given intramuscularly every 12 hours for ten days. The area healed without complication.

DISCUSSION

Phlegmasia caerulia dolens, or "blue leg," is infrequently associated with phlegmasia alba dolens and is thought to be due to almost complete obstruction of the venous return. In reported cases, varying patterns of development were noted. In some instances the first sign of phlebitis was the appearance

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of a "blue leg," as in the present case. However, the most common pattern was the appearance of a "blue leg" superimposed on active phlebitis. The condition is associated with a great deal of pain and swelling. The lower leg is involved most frequently, although in 20 per cent of the cases reported the upper extremity was involved. In some instances the peripheral pulses were absent and there was early onset of gangrene, often thought at first to be owing to arterial occlusion. However, supported by studies of removed tissue, most authorities agree that the gangrene in these circumstances is due entirely to complete venous blocking, the arteries remaining intact. The area of involvement is primarily superficial tissues. The possibility that gangrene may complicate "blue leg" makes energetic therapy mandatory.

With complete thrombosis of the venous system, the arterial system functioning normally, the following physiologic changes occur: Arterial blood enters the affected area at normal arterial pressure but, due to venous obstruction, stagnation and hypoxia is progressive. Subsequently the noncolloidal and then colloidal elements extravasate, edema and discoloration resulting.

The use of anticoagulants in the treatment of this condition is universally approved. In cases in which blue discoloration of the extremity is the first sign of phlebitis, heparin should be administered until the prothrombin time is brought down to therapeutic levels by the use of thromboplastin depressant drugs. The use of paravertebral block has proved to be of doubtful value.

In addition to the usual methods of treatment for phlebitis, Veal[3] suggested the use of passive muscular exercises to prevent gangrene. The exercise he described was to elevate the involved extremity to 60 or 70 degrees, then rapidly extend and flex the foot and thigh in the hope that blood will be massaged through the venous system until the collateral vessels have had opportunity to develop. These exercises are done at short intervals until cyanosis disappears.

DeBakey[1] reported two instances in which patients were operated upon and a clot removed from the femoral vein. He expressed belief that this had prevented gangrene of the extremity. There have been no further reports on the use of this method.

Fisher and Wilensky,[2] reporting upon the use of trypsin parenterally for acute and chronic thrombophlebitis, noted accelerated subsidence of pain, heat, tenderness, edema, erythema, streaking leukocytosis and Homen's sign if present. Acceleration of the sedimentation rate subsided within two or three days. They postulated that the enzyme dissolves the thrombi. Various investigators, reporting on experiments with dogs, suggested that trypsin brings about increased size of lumen in thrombosed veins, but other observers were unable to confirm the occurrence. It is generally agreed that acute thrombophlebitis of less than three weeks duration responds more satisfactorily to trypsin therapy.

SUMMARY

A case of gangrene of the thigh, of venous origin, is presented. Recognition of serious implications of "blue leg" with prompt therapy may avert partial or total loss of the extremity.

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Paroxysmal Ventricular Tachycardia

A Case Study

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THAT EMOTIONAL STRESS is often a relevant factor in the etiology of certain kinds of cardiac arrhythmia has been ably documented by numerous observers[1,2,4,5,6,8] and is now widely recognized. Extrasystoles, sinus tachycardia, paroxysmal auricular tachycardia and paroxysmal auricular fibrillation have all been shown in certain instances to be significantly related to psychic stress situations, not only cases in which there is pathologic change in the heart but also when the heart is entirely normal structurally so far as can be determined by any test now in use.

The term, *emotional stress*, is rather broad and often loosely used. What constitutes stress for one person may have no such effect on another. Similarly, the terms *anxiety*, *hostility*, and *tension* are often used in a rather general way to describe psychic reactions which deserve more precise formulation.

The following case report is presented with the conviction that the specific psychodynamic factors described not only shed light on the genesis of cardiac arrhythmia in this particular patient but also have more general implications. The cardiac arrhythmia, in this instance, moreover, was of special interest because it was of a relatively rare kind—paroxysmal ventricular tachycardia, a condition usually assumed to be associated with severe organic

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